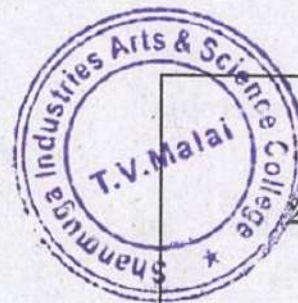


19. Discuss the differences between phase contrast and fluorescent microscopy, highlighting their advantages and limitations
20. Explain the various methods of sterilization, including physical, chemical, and gaseous methods and their applications.
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APRIL/MAY 2025

**23UEBC32 — MICROBIOLOGY I
(ELECTIVE III)**

Time : Three hours

Maximum : 75 marks

SECTION A — (10 × 2 = 20 marks)

Answer ALL questions.

1. Define spontaneous generation.
2. Name the scientist who proposed biogenesis and explain the concept.
3. Differentiate between prokaryotic and eukaryotic cells.
4. Define sporulation and its significance.
5. Describe the components of bacterial culture media.
6. Explain the concept and significance of CFU.
7. State the importance of staining in microscopy.
8. Compare bright-field and dark-field microscopy.

9. List two methods for testing antimicrobial sensitivity.
10. Describe the function of an autoclave in sterilization.

SECTION B — (5 × 5 = 25 marks)

Answer ALL questions.

11. (a) Outline the major contributions of Elie Metchnikoff in the field of immunology.

Or

- (b) Describe the five-kingdom classification system.

12. (a) Explain the general characteristics of bacteria.

Or

- (b) Discuss the role of flagella in bacterial movement.

13. (a) Interpret the steps involved in the pour-plate method.

Or

- (b) Describe the spread plate technique and its applications.

14. (a) Discuss the applications of phase contrast microscopy in biology.

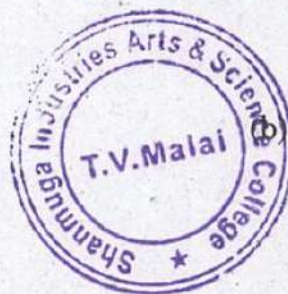
Or

- (b) Differentiate between TEM and SEM.

15. (a) Outline the steps involved in the disk diffusion method (Kirby-Bauer test) for antimicrobial sensitivity testing.

Or

Explain the difference between sterilization and disinfection.



SECTION C — (3 × 10 = 30 marks)

Answer any THREE questions.

16. Discuss the eight-kingdom classification system and its importance in modern biology.

17. Describe the various functions of cytoplasmic inclusions in prokaryotes and their importance in cellular metabolism and survival.

18. Describe the various techniques used for culturing anaerobic bacteria.